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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/692,762	10/24/2003	Toni A. Armstrong	38-21(10621)C	8955
27161	7590	04/13/2006	EXAMINER	
MONSANTO COMPANY 800 N. LINDBERGH BLVD. ATTENTION: GAIL P. WUELLNER, IP PARALEGAL, (E2NA) ST. LOUIS, MO 63167			HWU, JUNE	
		ART UNIT	PAPER NUMBER	1661
DATE MAILED: 04/13/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/692,762	ARMSTRONG ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	June Hwu	1661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1,5-8,10-14,17-22,26-33,35-41,43-45,49-52 and 54 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_ is/are allowed.
- 6) Claim(s) 1,5-8,10-14,17-22,26-33,35-41,43-45,49-52 and 54 is/are rejected.
- 7) Claim(s) \_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. ____.
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>7/12/04</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: ____.

## DETAILED ACTION

The preliminary amendment files October 24, 2003 is acknowledged and entered.

### ***Status of Claims***

Claims 2-4, 9, 15-16, 23-25, 34, 42, 46-48, 53 and 55-58 are cancelled. Claims 1, 5-8, 10-14, 17-22, 26-33, 35-41, 43-45, 49-52 and 54 will be examined on the merits.

### ***Objections to the Specification***

The disclosure is objected to because of the following informalities: The use of the trademark PARAFILM M has been noted in the specification. It should be capitalized or the use of the trademark symbol wherever it appears and be accompanied by the generic terminology. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 19 and 49 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 19 is unclear because it depends on claim 16, which is now cancelled.

Claim 49 contains the trademark/trade name PARAFILM M. Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the

trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe sealing material and, accordingly, the identification/description is indefinite.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5-6, 8, and 10-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Smith et al (In Vitro, vol. 13, no. 5, 1977, pp. 329-334).

The claims are drawn to a method of culturing non-embryogenic cotton callus tissue of hypocotyls, cotyledons and leaf or embryogenic cotton tissue by culturing in media containing ascorbic acid in complete darkness ( $0 \mu\text{Einsteins m}^{-2}\text{sec}^{-1}$ ).

Smith et al discloses a method of callus initiation of *Gossypium* (cotton) by culturing non-embryogenic cotton callus tissues derived from hypocotyls, cotyledon in the dark (p. 330, col. 2). The media contained up to 250 mg per liter of isoascorbic acid (p. 330, column 2, 1<sup>st</sup> full paragraph). Moreover, 0.6% of Difco Bactoagar was used in the media, which is a form of support matrix (p. 330, col. 2, 1<sup>st</sup> full paragraph). All of the experiments were sealed with plastic Kaputs (p. 330, col. 1, last paragraph).

Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Hirimburegama et al (Journal of the National Science Council of Sri Lanka, 22(4), 1994, pp.305-315).

The claim is drawn to a method of culturing cotton callus tissue from anthers and leaves by culturing them in complete darkness.

Hirimburegama et al discloses a method of culturing anther, and leaf tissues of cotton cultivar Coker 417 for callus induction in complete darkness (p. 305, last paragraph - p. 306, 2<sup>nd</sup> paragraph).

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 5-6, 8, 10-12, 14, 17, 18, 39-41, 44 and 50-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al (In Vitro, vol. 13, no. 5, 1977, pp. 329-334) in view of Adkins et al (Journal of Experimental Botany, vol. 44, no. 269, 1983, pp. 1829-1835).

The claims are drawn to a method of culturing non-embryogenic cotton callus tissue derived from hypocotyls, cotyledon and leaf in a embryo induction media containing antioxidant (ascorbic acid) and ethylene inhibitor (aminoethoxyvinylglycine) under dark lighting condition, then culturing the embryogenic cotton tissue in media containing a support matrix containing amino acid hydrolysate supplement in darkness wrapped with a sealing material.

The teachings of Smith et al are discussed above.

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Smith et al do not teach the method of using transformed cotton callus tissue wherein the media contains aminoethoxyvinylglycine (ethylene inhibitor) and amino acid hydrolysate supplement.

Adkins et al teach a method of culturing rice callus in media containing 3 g dm<sup>-3</sup> casein hydrolysate, an amino acid (p. 1830, col. 1, line 3) and adding up to 50 mmol m<sup>-3</sup> aminoethoxyvinylglycine (AVG) to the rice callus media (p. 1830, col. 2, last paragraph- p.1831, col. 1, lines 1-5 and Fig. 2). Adkins et al had noted that callus growth was improved with AVG in darkness (p. 1832, col. 1, and Fig. 2). In addition, Adkins et al also wrapped the culture media in plastic wrap (p. 1830, col. 1, last paragraph- col. 2) and the cultures were grown in the dark by wrapping the tubes in double A1-foil shield (p. 1830, col. 2, 4<sup>th</sup> full paragraph).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the method of plant regeneration as taught by Smith et al, and to modify that method by the addition of AVG and growing the callus culture media under darkness knowing that other crops benefit from the addition of AVG in the culture media as taught by Adkins et al (p. 1830, col. 1, 1<sup>st</sup> full paragraph and p. 1834, col. 1, 1<sup>st</sup> full paragraph). One of skill in the art would have been motivated to do so because Adkins et al teach that AVG improves callus growth in the dark (p. 1832, col. 1) and because AVG reduces the toxic effect of ethylene (p. 1834, col. 2, lines 6-12). In addition, Adkins et al noted that callus growth improved under dark condition because it reduce the ethylene production (p. 1832, col. 1 and p. 1833, col. 2). Moreover, one of ordinary skill in the art at the time the invention was made to use the method taught by Smith and to modify that method by the addition of amino acid given that selecting organic nitrogen source is an obvious decision choice. Thus, the invention as a whole was clearly *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

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Claims 7, 13, 20-22, 26-28, 31-33, 36-38 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al in view of Adkins et al as applied to claims 1, 5-6, 8, 10-12, 14, 17-19, 39-41, 44 and 50-52 above, and further in view of Umbeck (U.S. Patent No. 5,004,863).

The claims are drawn to a transgenic cotton callus tissue derived from hypocotyls, cotyledon, and leaf cultured in media comprising of antioxidant, ethylene inhibitor and amino acid supplement under dark lighting condition, culturing the media on a support matrix, and wrapping with a sealing material.

The teachings of Smith et al in view of Adkins et al are discussed above.

Smith et al in view of Adkins et al do not teach culturing transformed cotton callus tissues.

Umbeck teaches transformation of cotton hypocotyl tissues (col.4, lines 18-23).

It would have been obvious to one of ordinary skill in the art to use the method of cotton plant regeneration as taught by Smith et al in view of Adkins et al, and to modify that method by culturing transgenic cotton tissue as taught by Umbeck. One of ordinary skill in the art would have been motivated to do so; given the reported cotton transformation success and the fact that genetically engineered cotton plant is an economically important crop.

Thus, the invention as a whole was clearly *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

Claims 29, 30 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al in view of Adkins et al, and further in view of Umbeck as applied to claims 28 and 31 above, and further in view of Dodds et al (Experiments in Plant Tissue Culture, 2<sup>nd</sup> ed. 1985).

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The claims are drawn to culturing transgenic embryogenic cotton callus tissue in media containing antioxidant, ethylene inhibitor and media containing filter paper as a support matrix under dark lighting condition.

The teachings of Smith et al in view of Adkins et al and further in view of Umbeck are discussed above.

Smith et al in view of Adkins et al and further in view of Umbeck do not teach the cotton callus culture media contains filter paper as the support matrix.

Dodds et al teach the use of filter paper for supporting the culture media (p. 43, 1<sup>st</sup> full paragraph). For an aseptic culture, Dodds noted that PARAFILM M was used to seal the tissue culture (page 31, 2<sup>nd</sup> full paragraph). In addition, Dodds et al teach that casein hydrolysate and ascorbic acid could be added to the tissue culture media (p. 39, 2<sup>nd</sup> - 5 paragraphs).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the teachings of Smith et al in view of Adkins et al and further in view of Umbeck as discussed above, and to modifying the method in which the media contains a filter paper as a support matrix as taught by Dodds et al. One would have been motivated to do so given the ease of removing the filter paper without injuring the tissue cells. Thus, the invention as a whole was clearly *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

Claims 43 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al in view of Adkins et al as applied to claims 39 and 50 above, and further in view of Dodds et al.

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The claims are drawn to culturing cotton callus tissue in media comprising of antioxidant, ethylene inhibitor, amino hydrolysate supplement, and the media contains a support matrix wrapped in sealing material under total darkness.

The teachings of Smith et al in view of Adkins et al are discussed above.

Smith et al in view of Adkins et al do not teach callus culture media containing filter paper as the support matrix.

Dodds et al teach the use of filter paper for supporting the culture media (p. 43, 1<sup>st</sup> full paragraph).

It would have been obvious to one of ordinary skill in the art to use the method of cotton plant regeneration as taught by Smith et al in view of Adkins et al as stated above, and to modify that method by including in the cotton callus culture media a filter paper as the support matrix given the advantage of extra support to the media as taught by Dodds et al (p. 43, 1<sup>st</sup> full paragraph). One would have been motivated to do so, given the success rate and ease removing the filter paper without altering the tissue cells. Thus, the invention as a whole was clearly *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

### ***Conclusion***

No claims are allowed.

### ***Correspondence***

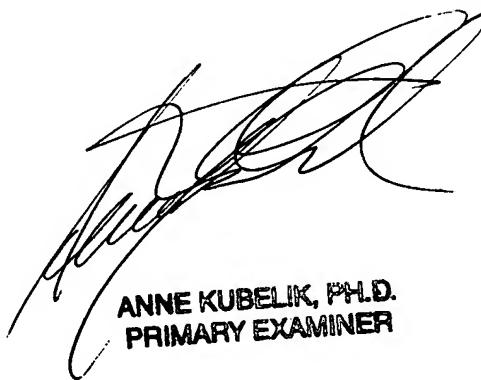
Any inquiry concerning this communication or earlier communications from the examiner should be directed to June Hwu whose telephone number is (571) 272-0977. The Examiner can normally be reached Monday through Thursday from 6:00 a.m. to 4:30 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Anne Marie Grunberg, can be reached on (571) 272-0975. The fax number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

June Hwu

April 11, 2006



ANNE KUBELIK, PH.D.  
PRIMARY EXAMINER